

Remarks/Arguments

Claims 1, 7 to 11 and 21 to 44 are pending. Claims 7 to 11 and 21 to 41 have been withdrawn from consideration as being drawn to a non-elected invention. Previously presented Claim 1 has been amended herein.

Applicants note, first of all, that support for the amendments made to Claim 1 in this Amendment is found in the descriptions on page 11, line 17, to page 12, line 10, and in particular on page 11, lines 21 to 23.

Claims 1 and 42 to 44 have been rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,782,989 (Rueter) in view of JP 62081408. Applicants traverse this rejection.

The Office Action stated: that Rueter teaches a polymer scale removal composition comprising acetone, a minor amount of a strong base, and a minor amount of a hydroxyl- or amino-functional polar organic solvent (see abstract; col. 3, lines 20 to 23); that an example of a strong base is alkali metal alkoxide (see col. 3, line 67 to col. 4, line 3); that the polar organic solvent is preferably selected from the group of alcohols, glycols, glycol monoethers, alkylamines and alkanol amines (see col. 4, lines 16 to 18), for example, n-butanol and ethylene glycol monomethyl ether (see col. 4, lines 23 to 40); that the cleaning composition contains little aromatic solvents, and may contain N-methylpyrrolidone in minor quantity (see col. 4, lines 41 to 48); and that Rueter, however, fails to specifically disclose sodium ethoxide as the alkali metal alkoxide.

In response, applicants note that, in connection therewith, Rueter discloses in Claim 1 as follows:

1. A vinyl polymer scale removal composition, comprising:
 - a) about 60 weight percent or more, based on the total weight of the composition, of a polymer scale removing solvent, said polymer scale removing solvent comprising about 80 weight percent or more of acetone based on the weight of said polymer scale removing solvent;
 - b) from about 0.01 weight percent to about 0.5 weight percent, based on the total weight of the composition, of a strong base soluble in said composition, said strong base selected from the group consisting of alkali metal hydroxides, alkali metal alkoxides, alkyl ammonium hydroxides, and mixtures thereof; and
 - c) from about 0.05 weight percent to about 30 weight percent of one or more polar organic solvents bearing one or more hydroxyl or amino groups.

As is stated in the Office Action, Rueter does disclose that an example of the strong base is alkali metal alkoxide in col. 3, line 67 to col. 4, line 3. In connection therewith, Rueter discloses, in col. 4, lines 8 to 11, that amounts of caustic appreciably above 0.1 weight percent may reduce polymer solubility in the case of some polymer scales and, thus, make a less effective cleaning solution. Rueter also discloses in col. 1 that the present invention pertains to a solvent system which is highly efficient to remove polymer scale from reactors used to manufacture polymer polyols. Further, Rueter discloses that the composition is used for the purpose of dissolving the polymer scale so as to be removed as demonstrated in Examples. That is, Rueter discloses that the

composition is used for the purpose of dissolving the polymer scale so as to be removed.

In contrast, the coating film-stripping solution of the present invention is not used for the purpose of dissolving the cured coating film so as to be removed, but is used for the purpose of stripping the cured coating film so as to be removed. That is, the coating film-stripping solution is used for the purpose of making the cured coating film easily strippable so as to be removed without dissolving the cured coating film.

More specifically, the coating film-stripping solution of the present invention provides the following features:

The coating film-stripping solution of the present invention is essentially composed of the stripping substance and the amide compound. The stripping substance has a function to break down crosslinking of the cured coating film to low molecules. The amide compound has a function to promote an action of the stripping substance such that the stripping substance can penetrate through the cured coating film and efficiently break down the crosslinked film. The combination of the above functions can provide an effect showing good strippability.

A combined use of the stripping co-solvent further promotes penetration of the stripping substance into the cured coating film, resulting in improving strippability.

Applicants note that the coating film-stripping solution of the present invention can easily strip the cured coating film without damaging the coating object support, and can also strip the cured coating film in a short period of time without environmental pollution. The cured coating film contacted with the coating film-stripping solution can be easily stripped from the substrate with water or the like.

Rueter is silent about the above features of the coating film-stripping solution of the present invention.

The composition of Rueter is quite different from the coating film-stripping solution in that the former contain acetone as a major essential component, whereas the latter does not contain acetone as an essential component.

Also, Rueter discloses that the composition contains the strong base including alkali metal alkoxide in an amount of in the range of from about 0.01 weight percent to about 0.5 weight percent, based on the total weight of the composition. Differently therefrom, the coating film-stripping solution contains the stripping substance consisting of sodium ethoxide in an amount of in the range 0.5 to 10% by weight based on the total weight of the stripping substance, the amide compound and the stripping co-solvent.

Moreover, meanings of respective scopes are different from each other.

According to the coating film-stripping solution, when the mixing ratio of the stripping substance is less than 0.14 by weight, strippability may be reduced as disclosed on page 11, lines 17 to 24. In contrast, Rueter discloses in col. 4,

lines 8 to 11, that amounts of caustic appreciably above 0.1 weight percent may reduce polymer solubility in the case of some polymer scales and, thus, make a less effective cleaning solution. That is, the former range is evaluated based on strippability, whereas the latter range is evaluated based on polymer solubility.

The Office Action stated: that JP 62081408, an analogous art, teaches a polymer removal scale composition comprising alkali metal alcoholate (also known as alkali metal alkoxide) having a formula ROM where M = methyl or ethyl group and M = an alkali metal (see abstract); and that it would have been obvious to one of ordinary skill in the art at the time the invention was made to reasonably expect the alkali metal alkoxide of Rueter to include sodium ethoxide because it is known from JP'408 that said sodium ethoxide is a known metal alkoxide or metal alcoholate which is used to remove polymer scale.

In response, applicants note that, in connection with therewith, JP '408 teaches in the basic-abstract, as follows:

Polymer scale adhered to equipment for mfr. or moulding of aromatic vinyl-acrylonitrile copolymers is removed using solvents selected from N-methyl-2-pyrrolidone (I) and sulpholane mixed with 0.005-015 wt. % of at least one metal alcoholate of formula ROM (I) (where R = methyl or ethyl gp.; M = an alkali metal).

Specifically, aromatic vinyl-acrylonitrile copolymers include e.g. styrene-acrylonitrile, alpha-methylstyrene-acrylonitrile copolymer. The copolymer contain pref. 24-34 wt. % of acrylonitrile. Metal alcoholates include e.g. sodium methylate, potassium ethylete. Polymer scale is washed away at above the softening pt. of polymer scale, pref. 50-150 deg. C. Polymer scale contg. alpha-methylstyrene is removed at 130-160 deg.C."

JP '408 also teaches, on page 2, left lower column, lines 3 to 15 as follows:

The metal alcoholate used in the present invention includes, for example, sodium methylate, sodium ethylate, potassium methylate, potassium ethylate, and these may be used as a commercially available alcoholic solution.

A mixing amount of the metal alcoholate is in the range of 0.005 to 0.15% by weight, preferably 0.01 to 0.1% by weight based on the weight of the metal alcoholate-mixed solvents, that is, a total weight of the metal alcoholate, N-methyl-2-pyrrolidone and sulfolane. A mixing amount of 0.15% by weight or more requires an undesirably longer period of time for dissolving the polymer scale adhered to the equipment. On the other hand, a mixing amount of 0.005% by weight or less makes it impossible to obtain an effect due to addition of the metal alcoholate.

JP '408 further teaches, in Examples 1 to 13 and Comparative Examples 1 to 8, that 0.5g of polymer scale sample was mixed with 100g of solvent, followed by heating at 100°C with agitation, and the time required for completely dissolving the polymer scales was measured with the results shown in Table 1. In Table 1, for example, comparison of Example 11 with Comparative Example 1 shows that 0.05% by weight of potassium methylate results in a dissolution time of 5 hours, whereas 0.2% by weight of potassium methylate results in a dissolution time of 8 hours, requiring 3 hours longer time.

As above mentioned, JP '408 discloses that the mixed solvent contains the metal alcoholate in an amount of in the range of from 0.005 weight percent to 0.15 weight percent, based on the total weight of the mixed solvent. Applicants

note that, differently therefrom, the coating film-stripping solution contains the stripping substance consisting of sodium ethoxide in an amount of in the range of 0.5 to 10% by weight based on the total weight of the stripping substance, the amide compound and the stripping co-solvent.

Moreover, meanings of respective scopes are different from each other.

According to the coating film-stripping solution, when the mixing ratio of the stripping substance is less than 0.1% by weight, strippability may be reduced as disclosed on page 11, lines 17 to 24. In contrast, JP '408 teaches, on page 2, in the left lower column, lines 8 to 13, that a mixing amount of 0.15% by weight or more requires an undesirably longer period of time for dissolving the polymer scale. That is, the former range is evaluated based on strippability, whereas the latter range is evaluated based on polymer solubility.

As above mentioned, JP '408 discloses that the mixed solvent is used for the purpose of dissolving the polymer scale so as to be removed. In contrast, the coating film-stripping solution of the present invention is not used for the purpose of dissolving the cured coating film so as to be removed, but rather is used for the purpose of stripping the cured coating film so as to be removed. That is, the coating film-stripping solution is used for the purpose of making the cured coating film easily strippable so as to be removed without dissolving the cured coating film.

Further, JP '408 is silent about the above-mentioned features of the coating film-stripping solution of the present invention. After all, both Rueter and

JP '408 neither teach nor suggest the coating film-stripping solution containing sodium ethoxide in the range of 0.5 to 10% by weight based on a total weight of the stripping substance, the amide compound and the stripping co-solvent as claimed in amended Claim 1, which solution is capable of making the cured coating film easily strippable to be removed without dissolving the cured coating film, to say nothing of the above-mentioned features of the coating film-stripping solution of the present invention.

For the reasons discussed above, it is believed that Claim 1, as amended herein, and Claims 42 to 44 are not rendered obvious over U.S. Patent No. 5,782,989 (Rueter) in view of JP 62081408. Thus, applicants request that this rejection under 35 U.S.C. 103(a) presently be withdrawn.

Reconsideration, reexamination and allowance of the claims are
respectfully requested at present.

Respectfully submitted,

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Date

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I certify that this Amendment dated April 19, 2007, is
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